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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,237	06/25/2004	Mitsuyasu Tamura	SON-2839	7485

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RADER FISHMAN & GRAUER PLLC
LION BUILDING
1233 20TH STREET N.W., SUITE 501
WASHINGTON, DC 20036

EXAMINER	
BECK, ALEXANDER S	
ART UNIT	PAPER NUMBER
2629	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/24/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/500,237	TAMURA ET AL.	
	Examiner	Art Unit	
	Alexander S. Beck	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 May 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 May 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *20040625 and 20050418*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statements (IDS) filed on June 25, 2004 and April 18, 2005 have been acknowledged and considered by the Examiner. Initialed copies of the PTO-1449 are included in this correspondence.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 1-7, 9, 13-6 and 18** are rejected under 35 U.S.C. 102(b) as being anticipated by Yamazaki et al. (U.S. Patent No. 6,424,326 B2, hereinafter YAMAZAKI).

As to independent **Claim 1**, YAMAZAKI teaches/suggests an image display device in **Figures 7-9**, comprising: a circuit for generating drive signals from an input image signal; a plurality of pixels including a light emitting element for emitting light of a predetermined color of red, green or blue by being applied with said drive signal supplied for each color from said circuit; an adjustment information

retrieve means for obtaining information relating to light emission adjustment of said light emitting element; and a level adjustment circuit provided in said circuit, for changing a level of an RGB signal before divided to said drive signals for respective RGB colors based on said information obtained by said adjustment information retrieve means (YAMAZAKI: col. 13, ln. 34-38; col. 14, ln. 1-9; col. 16, ln. 6 – col. 17, ln. 7).

As to **Claim 2**, YAMAZAKI teaches/suggests wherein said level adjustment circuit changes a level of a direct current voltage supplied to a circuit block in said circuit and proportional to luminance of said light emitting element (YAMAZAKI: col. 16, ln. 6 – col. 17, ln. 7).

As to **Claim 3**, YAMAZAKI teaches/suggests the image display device further comprising a D/A converter for performing digital-analog conversion on said RGB signal; wherein said adjustment information retrieve means retrieves said information relating to changes over time for each of RGB colors; and said level adjustment circuit changes a reference voltage to be supplied to said D/A converter based on said information of respective RGB colors obtained by said adjustment information retrieve means (YAMAZAKI: col. 16, ln. 6 – col. 17, ln. 7).

As to **Claim 4**, YAMAZAKI teaches/suggests the image display device further comprising: a plurality of data lines for connecting by each color said plurality of pixels repeatedly arranged by a predetermined color arrangement; and a data holding circuit for holding for the respective RGB colors time-series pixel data composing said RGB signal and outputting the pixel data held for the respective colors as said drive signals in parallel with corresponding plurality of said data lines; wherein said level adjustment circuit adjusts a level of said drive signal of at least one color by changing a level of said direct current voltage for necessary times based on said information obtained from said adjustment

information retrieve means at a timing that pixel data of a different color is input to said data holding circuit (YAMAZAKI: col. 13, ln. 25 – col. 17, ln. 7).

As to **Claim 5**, YAMAZAKI teaches/suggests wherein a control signal input to said level adjustment circuit for changing a level of said direct current voltage is in common with a sample hold signal for controlling said data holding circuit (inherent for preventing the underflow/overflow of data at the sampling stage prior to the sequential displaying of color data) (YAMAZAKI: col. 13, ln. 25 – col. 17, ln. 7).

As to **Claim 6**, YAMAZAKI teaches/suggests wherein a control signal input to said level adjustment circuit for changing said direct current voltage is a signal in synchronization with a sample hold signal for controlling said data holding circuit (inherent for preventing the underflow/overflow of data at the sampling stage prior to the sequential displaying of color data) (YAMAZAKI: col. 13, ln. 25 – col. 17, ln. 7).

As to **Claim 7**, YAMAZAKI teaches/suggests wherein: said adjustment information retrieve means and said level adjustment circuit comprises a detection means for detecting a value changing along with luminance of pixels from pixels of each color; and a memory means for storing correspondence of said changing value and a level adjustment amount of said RGB signal (YAMAZAKI: col. 16, ln. 6 – col. 17, ln. 7).

As to **Claim 9**, YAMAZAKI teaches/suggests wherein said light emitting element is an organic electroluminescence light emitting element (YAMAZAKI: col. 1, ln. 35-37).

As to independent **Claim 13**, YAMAZAKI teaches/suggests a color balance adjustment method of an image display device in **Figures 7-9**, comprising a plurality of pixels including a light emitting element for emitting light of a predetermined color of red, green or blue in accordance with an input drive signal, including: a step of obtaining information relating to light emission adjustment of said light emission element; a step of changing a level of an RGB signal before divided to said drive signals for respective RGB colors based on said information on light emission adjustment; and a step of generating said drive signals by dividing for the respective colors time-series pixel data composing said RGB signal and supplying to said pixels corresponding thereto (YAMAZAKI: col. 13, ln. 34-38; col. 14, ln. 1-9; col. 16, ln. 6 – col. 17, ln. 7).

As to **Claim 14**, YAMAZAKI teaches/suggests wherein in the step of changing a level of said RGB signal, a level of a direct current voltage supplied to a circuit block in a circuit for performing signal processing on an image signal and generating said drive signals, and proportional to luminance of said light emitting element is changed (YAMAZAKI: col. 16, ln. 6 – col. 17, ln. 7).

As to **Claim 15**, YAMAZAKI teaches/suggests the color balance adjustment method of an image display device including a holding step for holding for the respective RGB colors time-series pixel data composing said RGB signal when generating said drive signals; wherein, in the step of changing a level of said RGB signal, by changing the level of said direct current voltage for necessary times based on said information obtained from an adjustment information retrieve means at a timing that pixel data of a different color is input to said holding step, a level of said drive signal of at least one color is adjusted (YAMAZAKI: col. 13, ln. 25 – col. 17, ln. 7).

As to **Claim 16**, YAMAZAKI teaches/suggests wherein the step of retrieving information relating to said light emission adjustment includes a step of detecting a value changing along with luminance of pixels from pixels of the respective colors; and a step of determining a level adjustment amount of said RGB signal from said changing value based on correspondence of said changing value and a level adjustment amount of said RGB signal obtained in advance (YAMAZAKI: col. 16, ln. 6 – col. 17, ln. 7).

As to **Claim 18**, YAMAZAKI teaches/suggests wherein said light emitting element is an organic electroluminescence light emitting element (YAMAZAKI: col. 1, ln. 35 – 37).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. **Claims 8 and 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. (U.S. Patent No. 6,424,326 B2) in view of Tanada (U.S. Patent No. 6,774,578 B2, hereinafter TANADA).

As to **Claim 8**, note the above discussion with respect to YAMAZAKI and Claim 1.

YAMAZAKI does not disclose expressly wherein said adjustment information retrieve means and said level adjustment circuit comprises a clocking means for counting an accumulated light emission time of the pixels; and a memory means for storing correspondence of said accumulated light emission time and a level adjustment value of said RGB signal.

TANADA, analogous in art with YAMAZAKI, teaches/suggests an image display device in **Figure 18** comprising: an adjustment information retrieve means and a level adjustment circuit, wherein said adjustment information retrieve means and said level adjustment circuit comprises a clocking means for counting an accumulated light emission time of the pixels; and a memory means for storing correspondence of said accumulated light emission time and a level adjustment value of a video signal (TANADA: col. 4, ln. 54 – col. 5, ln. 4).

At the time the invention was made, it would have been obvious to person of ordinary skill in the art to modify the teachings of YAMAZAKI such that the adjustment information retrieve means and said level adjustment circuit comprise a clocking means for counting an accumulated light emission time of the pixels and a memory means for storing correspondence of said accumulated light emission time and a level adjustment value of a video signal, as taught/suggested by TANADA, wherein the video signal is an RGB video signal, as previously discussed by YAMAZAKI.

The suggestion/motivation for doing so would have been to correct degradation of an image display device (TANADA: col. 4, ln. 54 – col. 5, ln. 4).

As to **Claim 17**, note the above discussion with respect to YAMAZAKI and Claim 13.

YAMAZAKI does not disclose expressly wherein the step of retrieving information relating to said light emission adjustment includes a step of counting an accumulated light emission time of the pixels; and step of determining a level adjustment amount of said RGB signal from the current accumulated light emission time of the pixels based on the correspondence of said accumulated light emission time and the level adjustment amount of said RGB signal obtained in advance.

TANADA, analogous in art with YAMAZAKI, teaches/suggests a method of image correction on an image display device comprising a step of retrieving information relating to light emission adjustment which includes a step of counting an accumulated light emission time of the pixels; and a step of determining a level adjustment amount of a video signal from the current accumulated light emission time of the pixels based on the correspondence of the accumulated light emission time and the level adjustment amount of said video signal obtained in advance (TANADA: col. 4, ln. 54 – col. 5, ln. 4).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the teachings of YAMAZAKI such that the step of retrieving information relating to said light emission adjustment includes a step of counting an accumulated light emission time of the pixels; and step of determining a level adjustment amount of said RGB signal from the current accumulated light emission time of the pixels based on the correspondence of said accumulated light emission time and the level adjustment amount of said video signal obtained in advance, as taught/suggested by TANADA, wherein the video signal is an RGB video signal, as previously discussed by YAMAZAKI.

The suggestion/motivation for doing so would have been to correct degradation of an image display device (TANADA: col. 4, ln. 54 – col. 5, ln. 4).

7. **Claims 10-12 and 19-22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. (U.S. Patent No. 6,424,326 B2) in view of Miyachi et al. (U.S. Patent No. 6,982,686 B2, hereinafter MIYACHI).

As to independent **Claim 10**, YAMAZAKI teaches/suggests an image display device in **Figures 7-9**, comprising: a circuit for generating drive signals from an input image signal; and a plurality of pixels including a light emitting element for emitting light of a predetermined color of red, green or blue by being applied with said drive signal supplied for each color from said circuit; wherein said circuit comprises a level adjustment circuit for changing a level of an RGB signal before divided to said drive signals for the respective RGB colors based on image adjustment information (YAMAZAKI: col. 13, ln. 34-38; col. 14, ln. 1-9; col. 16, ln. 6 – col. 17, ln. 7).

YAMAZAKI does not disclose expressly wherein said circuit comprises a motion detection circuit for detecting motions by said image signal; a level adjustment circuit for changing a level of an RGB signal based on a result of the motion detection obtained from said motion detection circuit; and a duty ratio adjustment circuit for changing the duty ratio of a light emission time of said pixels based on the motion detection result.

MIYACHI, analogous in art with YAMAZAKI, teaches/suggests an image display device in **Figures 37-41**, comprising: a motion detection circuit for detecting motions by an image signal; a level adjustment circuit for changing a level of video signal based on a result of the motion detection obtained from said motion detection circuit; and a duty ratio adjustment circuit for changing the duty ratio of a light emission time of said pixels based on the motion detection result (MIYACHI: col. 38, ln. 60 – col. 44, ln. 16).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the teachings of YAMAZAKI such that the circuit comprises a motion detection circuit for detecting motions by an image signal; a level adjustment circuit for changing a level of video signal based on a result of the motion detection obtained from said motion detection circuit; and a duty ratio

adjustment circuit for changing the duty ratio of a light emission time of said pixels based on the motion detection result, as taught/suggested by MIYACHI.

While the teachings of MIYACHI are directed to the backlight of a liquid crystal display, it would have been within the level of ordinary skill in the art at the time the invention was made to implement the luminance control and motion detection of MIYACHI into the EL display device of YAMAZAKI, as the teachings of MIYACHI are applicable to image display devices outside of the liquid crystal art. The suggestion/motivation for doing so would have been to improve the display quality of an image display device (MIYACHI: col. 43, ln. 64 – col. 44, ln. 10).

As to **Claim 11**, YAMAZAKI teaches/suggests wherein said level adjustment circuit changes a level of a direct current voltage supplied from a circuit block in said circuit and proportional to luminance of said light emitting element (YAMAZAKI: col. 16, ln. 6 – col. 17, ln. 7).

As to **Claim 12**, YAMAZAKI teaches/suggests wherein said light emitting element is an organic electroluminescence light emitting element (YAMAZAKI: col. 1, ln. 35-37).

As to independent **Claim 19**, YAMAZAKI teaches/suggests a color balance adjustment method of an image display device, comprising a plurality of pixels including a light emitting element for emitting light of a predetermined color of red, green or blue in accordance with a drive signal generated by performing signal processing on an input image signal, including: a step of changing a level of an RGB signal before divided to said drive signals for the respective RGB colors based on image adjustment information (YAMAZAKI: col. 13, ln. 34-38; col. 14, ln. 1-9; col. 16, ln. 6 – col. 17, ln. 7)

YAMAZAKI does not disclose expressly a step of detecting motions of an image to be displayed from said image signal; a step of changing a level of an RGB signal based on the result of said motion

detection; and a step of changing a duty ratio of a pulse for controlling a light emission time of said light emitting element based on said detection result.

MIYACHI, analogous in art with YAMAZAKI, teaches/suggests a method of image correction on an image display device in **Figures 37-41**, comprising: a step of detecting motions of an image to be displayed from an image signal; a step of changing a level of an image signal based on the result of said motion detection; and a step of changing a duty ratio of a pulse for controlling a light emission time of said light emitting element based on said detection result (MIYACHI: col. 38, ln. 60 – col. 44, ln. 16).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the teachings of YAMAZAKI such that the method included a step of detecting motions of an image to be displayed from an image signal; a step of changing a level of an image signal based on the result of said motion detection; and a step of changing a duty ratio of a pulse for controlling a light emission time of said light emitting element based on said detection result, as taught/suggested by MIYACHI.

While the teachings of MIYACHI are directed to the backlight of a liquid crystal display, it would have been within the level of ordinary skill in the art at the time the invention was made to implement the luminance control and motion detection of MIYACHI into the EL display device of YAMAZAKI, as the teachings of MIYACHI are applicable to image display devices outside of the liquid crystal art. The suggestion/motivation for doing so would have been to improve the display quality of an image display device (MIYACHI: col. 43, ln. 64 – col. 44, ln. 10).

As to **Claim 20**, YAMAZAKI teaches/suggests wherein in the step of changing a level of said RGB signal, a level of a direct current voltage supplied to a circuit block in a circuit for performing signal processing on an image signal and generating said drive signals, and proportional to luminance of said light emitting element is changed (YAMAZAKI: col. 16, ln. 6 – col. 17, ln. 7).

As to **Claim 21**, YAMAZAKI teaches/suggests the color balance adjustment method of an image display device including a holding step for holding for the respective RGB colors time-series pixel data composing said RGB signal when generating said driving signals; wherein, in the step of changing a level of said RGB signal, by changing the level of said direct current voltage for necessary times based on information obtained from said adjustment information retrieve means at a timing where pixel data of a different color is input to said holding step, a level of said drive signal of at least one color is adjusted (YAMAZAKI: col. 13, ln. 25 – col. 17, ln. 7).

As to **Claim 22**, YAMAZAKI teaches/suggests wherein said light emitting element is an organic electroluminescence light emitting element (YAMAZAKI: col. 1, ln. 35-37).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yoshinaga et al. (U.S. Patent No. 6,791,527 B2) discloses a method and apparatus for motion detection, level correction and duty ratio adjustment.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Alexander S. Beck** whose telephone number is **(571) 272-7765**. The examiner can normally be reached on M-F, 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Sumati Lefkowitz** can be reached on **(571) 272-3638**. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

asb
1/10/07

SUMATI LEFKOWITZ
SUPERVISORY PATENT EXAMINER